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ABSTRACT

The thesis of this paper is that systematic research approaches must be developed if the study of play is to avoid a short-lived "in" period before another 30-year hiatus, such as the one that occurred between 1940 and 1970. This paper reviews the present status of research on play, drawing examples from studies of the past 10 years that have addressed motive and content questions through the use of a number of theoretical paradigms. The major methods used in this research--naturalistic observation, experimental manipulation, and self-report or performance measures--are reviewed, as are related studies that used similar methodologies that have promoted strong inference. The present state of the art is described, future directions for play research are suggested, and questions for future research agendas are offered. The development of a research replication and collaboration network that could bring together university researchers of varying levels of experience, graduate students, and early childhood practitioners, is proposed, and the rationale for this approach is explained. Over 50 references are cited. Tables list characteristics of various research methods and questions for further study. (RH)

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Methods for Studying Play in Early Childhood: Reviewing the "State of the Art" and Planning Future Directions

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Abstract

This paper reviews the present status of research on play, drawing examples from studies done in the past ten years that have addressed motive and content questions through the use of a number of theoretical paradigms. The major methods used in this research--naturalistic observation, experimental manipulation, and self-report/performance measures--are reviewed and related studies using similar methodologies that have promoted strong inference are discussed. Future directions for play research are suggested and questions for future research agendas are given. The development of a research replication/collaboration network that would bring together university researchers of varying levels of experience, graduate students, and early childhood practitioners is proposed and the rationale for this approach is explained.

In our "trendy" American society, where each December the news media report for the coming year what will be "in" (e. g., fake pearls) and "out" (e. g., designer dresses), today's important topic is often tomorrow's forgotten agenda item. Over the course of our professional careers many of us in early childhood education have survived a few cycles of early childhood "inness" and "outness." It appears that early childhood is "in" again and, although we are pleased that interest is on the upswing, our past experience tells us to be cautious about the staying power of this new early childhood emphasis. Similarly, the valuing of play as a part of the early childhood curriculum and as a topic worthy of systematic research and theory-building has also waxed and waned over the years. Presently we are in the midst of a strong revival of interest in play as a topic of research, not only in relation to the early childhood years but throughout the lifespan. In recent deliberations of educational commissions (e. g., NASBE, ATE) and in current state and local public school policy decision-making, we even see some evidence that interest in play as a vital part of the curriculum in kindergarten is being reawakened.

As the presentations on this panel make clear, the study of play itself, of its relationship to other developmental and learning areas, and of the role teachers can have in supporting its development is

providing an increasing body of knowledge about play that can be useful to early childhood educators. According to Britt and Janus (1941), there had been only 10 empirical studies of play published by the end of the nineteenth century and even in the "play heydays" of the 30's, only 70 were published. In contrast Rubin, Fein, and Vandenberg found 450 citations worthy of including in their comprehensive review of play research, published in 1983. Pepler and Rubin (1982) have stated that between 1970 and 1982 over 50% of all play research studies were published. This proportion has certainly increased greatly again in the past seven years and the exponential growth of research on play is encouraging to those of us who value its role in early childhood education.

It is the thesis of this paper, however, that if the study of play is to avoid having a short-lived "in" period before another 30 year hiatus, such as occurred between 1940 and 1970, those of us who are interested in this area of study need to give some attention to ways that we can encourage systematic research approaches that build the body of knowledge through replications of and extensions of past and present research. By encouraging networking of university researchers, collaborative data collection efforts with early childhood teachers in the field, and identification of

questions that could be investigated as part of a common research agenda, early childhood play researchers could do much to keep the study of play "in" as a legitimate area of knowledge exploration.

In the brief time I have I would like to address five points that may serve to outline this perspective and encourage dialogue among us about the future of play research. I would like to discuss (1) the nature of play research; (2) some influential methodological models; (3) the present "state of the art;" (4) some future directions of study; and (5) the role a research replication/collaboration network might play in enhancing the possibilities of strong inference.

The Nature of Play Research

While it is true that researchers in any field must resolve definitional and methodological questions if they are to engage in productive study, play researchers have faced a number of unique problems in determining how to study "that clever fool, play" (Vandenberg, 1982). For a long time they encountered the view that, because play behaviors could not be precisely defined and separated from other behavioral categories (i. e., almost any behavior can be play or not play, depending on individual intent and contextual factors), play was not a separate phenomenon that could be studied empirically. In 1947 Schlosberg made the

recommendation that other human behaviors should be first studied and explained, and only if an unexplained area called play then remained would it need to be a topic of research (Schlosberg, 1947). This view of play as what was "left over" has been called the "wastebasket" definition of play by Gilmore (1971).

Obviously, such a perspective has been refuted since the 70's by researchers who have managed to define the play phenomenon in diverse but clearly researchable ways. Still the question of how play is defined for research purposes continues to be a matter of debate. For example, Sutton-Smith (1979) points out that play has been studied under the guise of two very different theoretical paradigms: as an individual phenomenon (i e., based on psychological theory) and as a cultural phenomenon (i. e., using anthropological, linguistic, and ecological theory aproaches). He also asserts that many of its paradoxical aspects (e. g., play includes tendencies toward both equilibrium and disequilibrium, rationality and irrationality, civility and incivility) have yet to be adequately addressed.

Because there have been many untested theoretical assumptions made about what play is and what purposes it serves, researchers also need to make explicit the underlying assumptions that affect the particular research questions they choose to address and the research methods they select so that a theory-based

body of knowledge will result (Bergen, 1987). The lack of a theory-based research perspective in the 30's may be at least partially responsible for the minimal effect these early studies of play had on subsequent child development and educational research and practice (Sponseller, 1982). Fortunately most of today's researchers on play have clearly specified the theoretical base from which their studies are drawn.

Definitional issues have also affected how studies of play have been designed. According to Ellis (1973), research definitions have been shaped by two differing perspectives on what should be studied: (1) motive (i. e., concerned with why and when play occurs), and (2) content (i. e., concerned with identifying constituent elements of play).

For example, a study concerned with examining conditions in the play environment that elicit active play is focusing on motive (Ellis, 1973) while a study that categorizes stages of pretense is concerned with content (Bretherton, 1984). Operational definitions are also a matter of controversy, ranging from studies that operationalize and record play micro-behaviors (Hutt & Hutt, 1977) to those that ask observers to make judgements on the basis of global impressions of play events (Matthews & Matthews, 1982).

In spite of, or perhaps as a result of having had to resolve research problems caused by the unique

characteristics of play, there have been a rich diversity of methodology developed and a wide range of research questions explored. A few of these research methodologies have been especially prominent in influencing the designs of recent research. They include examples drawn from naturalistic observation, experimental, and self-report or survey methods. A review of just a few of these examples may serve to illustrate how continuity between past and present research and thus the possibility of strong inference has been enhanced by some researchers.

Examples of Influential Methodological Models

The three basic methodological models used to study play: (1) naturalistic observation; (2) experimental manipulation; and (3) self-report or performance measures have usually addressed different questions. Table 1 gives an overview of these three methods and suggests strengths and weaknesses of each (adapted from Bergen, 1987).

Insert Table 1 about here

The methodology that has been used most frequently by researchers interested in early childhood play is that of naturalistic observation. Most studies of play conducted in the 1920s and 1930s used some form of

observation of young children in a laboratory nursery school environment. Many of these studies were rediscovered in the late 1960s and since that time have had an influence on play research.

The most influential of these early models has been that of Parten (1932, 1933), who observed and categorized children's social play. In the past fifteen years replications of her study have been conducted (e. g., Barnes, 1981) and also the categories she defined (i. e., solitary, parallel, associative, and cooperative play) have been adapted, revised, and combined with the cognitive categories of play suggested by Piaget (1962). These adaptations drawn from Parten and Piaget have provided a useful framework for examining and comparing social play development. For example, Rubin and colleagues (1975, 1976, 1978) studied a range of social and cognitive play dimensions using an observational instrument that includes categories of play that Smilanski (1968) adapted from Parten and Piaget's research. Building on Rubin's work, Guralnick and colleagues (1981, 1984, 1985), have now investigated the social play of children with various handicapping conditions. A number of other studies of special needs children that have used this methodological model have reported results congruent with Guralnick (e. g., Brophy & Stone-Zukowski, 1984). Because of the weight of evidence

being amassed by this approach, strong inferences about social play of young children can be made with a degree of confidence. Data collection through replications and adaptations of this methodology appear likely to continue to be useful for exploring a range of social play questions. Pellegrini (1984b) has suggested that a version of Rubin's model can also be used by teachers who wish to assess the play of children in their classrooms.

Another example of a rediscovered natualistic observation methodology which has provided a basis for new research adaptations is one that focuses on how toys and other play materials are used by young children. This question was first investigated in the 1930s (e. g., Van Alstyne, 1932) and present studies using versions of these methods often find results congruent with the early studies. For example, findings about differences in the ways boys and girls relate to similar classroom environments have been replicated in current studies using similar methodology (Clance & Dawson, 1974).

Based initially on these early observational studies, the methodology for studying various environmental factors has been greatly extended by current researchers and a relatively large body of research on these factors in both indoor and outdoor environments has been collected (see Phyfe-Perkins &

Shoemaker, 1986; Frost, 1986 for a review of these factors). These approaches have productively studied physical characteristics indoors such as high or low structure of toys and play materials (e. g., McLoyd, 1983, 1986) and playground play behaviors (Pellegrini, 1987). Another approach combines naturalistic observation and experimental manipulation (i. e., observation of play before and after making changes in the environment (e. g., Kinsman & Berk, 1979)) has been especially productive for studying questions of gender differences in play (e. g., Liss, 1986).

A third line of inquiry that is proving to be useful is one that draws on anthropological/linguistic paradigms, combining naturalistic observation with linguistic and ethnographic analysis. For example, the work of Kirschenblatt-Gimblett (1976, 1979), which focuses on speech play and "verbal art" from this methodological perspective, provides information about language play in many cultures. This research builds upon the work of a number of sociolinguistic and anthropological researchers, including Opie and Opie (1959) who provided an extensive catalogue of language play examples gathered in Great Britain.

Recent research on children's humor, especially as it is exhibited in language play with jokes and riddles, has been influenced by these descriptive ethnographic studies. Recent studies draw upon both

naturalistic observation and experimental methodology in order to gain increasingly precise descriptions of language play and to relate these descriptions to theories of language, cognitive, and social development. (e. g. Bowes, 1981; Groch, 1974; McGhee, 1977; Shultz, 1974; Yalisove, 1978).

Examples of questions asked and methodology used in naturalistic observation studies are in Table 2-1 (Bergen, 1987). They are all prime candidates for replication and/or extension, as are many other studies not on this list that have been done in the past decade.

Insert Table 2-1 about here

Experimental approaches to the study of play have become increasingly common since the 1970s. In the early 70's the Singers provided a number of examples of experimental methodological approaches for studying imaginative play of preschool and kindergarten children (e. g., Singer, J. L., 1973; Singer, J. L., & Singer, D. G., 1976). Experimental methods have also been used effectively in the study of pretense in toddlers, drawing upon Fein's (1975) study of the influence of object representational realism on toddlers' ability to make transformations. For example, Bretherton and

colleagues (1984) have designed a number of experimental variations to explore the transformational process in order to more clearly understand the stages of pretense exhibited by toddlers. Because the majority of researchers studying toddler pretense are focusing on aspects of Piagetian theory, this body of research is an especially good example of study that can lead to strong inference. Although it is a relatively recent strand of study, it has already provided both researchers and practitioners with a useful body of knowledge.

The study of pretense has also had a focus on observation of the role of adult models and facilitators (especially mothers) in enhancing pretense development (e. g., Miller & Garvey, 1984). Both naturalistic studies of pretense (Miller & Garvey, 1984) and studies using experimental designs involving teacher intervention (e. g., Smilanski, 1968) hold promise as research lines of interest. One type of intergenerational play that has been studied experimentally it that of infant-parent social play routines (e. g., Shultz, 1979). This research has uncovered some intriguing evidence of the importance of early play interactions and it has uncovered differences in those between non-handicapped and handicapped children and their parents (e.g., Beckwith, 1985; Field, 1979).

Another experimental methodology that has been replicated and extended is the investigation of relationships between play and higher order thinking such as problem solving, which was stimulated by theoretical work of Bruner (e.g., Sylva, Bruner, & Genova, 1976). This line of research is an interesting example because, although some replications and extensions have reported results supporting the positive relationship between play and higher order thinking processes (e. g., Pellegrini, 1984a, Vandenberg, 1981), Pepler and Ross (1981) have also pointed out some of the unresolved issues and conflicting interpretations that the study of the relationship of play to higher order thinking has raised. Reviews of evidence from fantasy play training studies that attempted to increase children's higher order thinking through play have also resulted in questions about other possible explanations of the connection between play training and the facilitation of thinking (e. g. Saltz and Brodie, 1982).

Discussions of this type exemplify an important aspect of a strong inference research approach, which has as a goal the identification of and elimination of alternative hypotheses in order to strengthen the probability of finding the hypothesis that is most difficult to refute. Obviously, dialogue among researchers who are working with similar methodology

about the discrepancies in their results as well as their congruencies is an essential part of the strong inference process.

Table 2-2 describes a number of experimental approaches that have the potential for replication or extension (Bergen, 1987). These are also just a few examples from many recent studies that could be replicated.

Insert Table 2-2 about here

Although the methodology used in many self-report studies of play requires that children can read and do check lists, in adapted formats using interviewing and manipulation of pictures, dolls, or other objects it can be a useful methodolgy for exploring certain questions about play and social preferences in young children. Self-report methods have a long history, ranging back to the surveys conducted by Hall in the early 1900s and having been further developed by Terman (1926) and Vance and McCall (1934). Adaptations of these methods, which involve asking children to select toy or play preferences and/or describe games or other play activities, have been used in a number of ways.

One example that has become a "neo-classic" study is that of Rosenberg and Sutton-Smith (1960), who compared the game preferences of children in the 1960s to those of children who were studied by Terman in the 1930s. Adaptations of this methodology have been used extensively by sociolinguists and anthropologists (e. g., Abrahams, 1969) and by researchers in other parts of the world (e. g., Roberts, 1980).

Versions that use interviews or sociometric tasks to explore relationships between play and friendship development have also been designed (Hallinan & Tuma, 1978). Because most of the play or toy preference studies have shown gender differences, a number of recent replications and extensions of play and toy preference studies have focused on gender similarities and differences (e. g., Wolfgang, 1985). One of the cautions in using self-report methodologies given by Coury and Wolfgang (1984) is that of the necessity for connecting play or toy preference categories to a theoretical base so that interpretations that inform theory will result. This has been a weakness of this approach in the past.

Table 2-3 gives some additional examples of self-report/performance studies that could be replicated or extended (Bergen, 1987). Other recent studies could also be identified for possible replication.

Insert Table 2-3 about here

The Present "State of the Art"

As the preceding examples demonstrate, the methodological base that has been formed in the past ten to fifteen years can lead to another exponential leap, not only in the number of studies of play, but also in the strength of inference that can be drawn from play research and in the explanatory power of the constructs of play theory.

A relatively large number of university researchers whose work has focused on play have reached a high level of scholarly maturity in their study of related sets of research questions, in refinement of appropriate methodologies, and in using findings to add precision to particular theoretical constructs. As new studies are reported, these researchers are identifying subsequent questions of interest and the published literature is rich with suggestions for further exploration. The research described by members of the panel today as well as the examples I have provided in my paper has good potential for replication and extension.

Another important development is that there is

more communication among researchers using the two different paradigms (i. e., psychological and sociolinguistic/anthropological). For example, the organization that used to be called The Association for the Anthropological Study of Play is now called The Association for the Study of Play and it invites researchers from all perspectives who are studying play at all age levels to present at its conferences.

There has also been an expansion in the number of journals that are either interested in all topics in early childhood, including play, or that are specifically focused on the publication of research on play and/or humor. Many of the journals in psychology and education now also publish routinely studies that relate to aspects of play. Publishers are also much more interested in books about play, as the last two years' publication records demonstrate. Information from studies of play in other countries around the world is also being communicated through international journals and more American journals are including research from other countries as well. Thus, the potential for communicating about research on play has been greatly enhanced in comparison to conditions that existed even five years ago.

Planning Future Directions for Study

Some broad areas of research that seem likely to

be particularly fruitful for future study are intergenerational play, cross-cultural play, the play of special needs children, play/development and play/learning relationships, and effects of manipulations of structures in the physical and social environments of play. Further exploration of individual cognitive, personality, and gender differences in play styles and preferences are also warranted. Some specific research questions that have been identified by a number of researchers are listed in Table 3 (adapted from Bergen, 1987).

Insert Table 3 about here

Most important for advancing the cause of strong inference, however, is that small scale studies that have been done in the past be systematically replicated under varying conditions and that replicated studies be subjected to meta-analysis. Often a small scale study that seems to have important implications is reported by one researcher and that study continues to be quoted in the literature without any systematic attempts to determine under what varying conditions the results apply. Another needed approach is extension of research based on a promising body of knowledge that has begun to be developed by one researcher or research group.

If the researchers who have developed that data base could identify other researchable questions for others to explore with their consultation on methodology, the result would be that stronger inferences could be made about the entire body of research-based information.

Some researchers that are based at major research universities where there is already a systematic research on play in place or those researchers who have already established an informal collegial network with other researchers may question why special efforts are necessary to encourage play research. Certainly the common processes for spreading research information and connecting with colleagues that are used in every research field might be considered sufficient for reaching the goal of strong inference.

There are three reasons why the study of play, in particular, would benefit by a more systematically planned opportunity for research replication and collaboration. First, many present and potential play researchers are on early childhood or child development faculties having only one to four members. In many cases they may be the only faculty member who is interested in studying play in their entire university. Second, many of these less well-known researchers are not at early childhood doctoral degree granting universities and thus have no built-in student group to

form their own play research unit. Third, often these researchers are in early stages of their work and because they have no mentor at their own universities who can provide consultation on methodology and analysis procedures and encourage them to prepare their work for publication, they may conduct small scale and resource poor studies that are not linked to any existing research agenda. The result is often a loss of their potential contribution to the field of play research. This loss should not be accepted as inevitable when a method that could promote the inclusion of these researchers' contributions may be available.

Also for the long term health, vitality, and "mainstreaming" of research on play, systems are needed for translating the information from the body of knowledge being collected into classroom practice and teacher education. One of the best ways to do this is by having a greater emphasis on the methods of studying play and involvement in play research as required parts of university early childhood teacher education programs. Presently there are many university degree programs purporting to train early childhood teachers that have no course on play as part of their curriculum. It is no wonder that many early childhood graduates have difficulty articulating why play materials should be included in their classroom and why

time for play should be built into the school/center day. Perhaps if they were active members of research teams connected to the universities in their region, they might be more likely to include play in their curriculum. The national trend toward having "teachers as researchers" (Eiserman & Shisler, 1987; Futrell, 1986) has important implications for educational practice. By involving early childhood teachers in the study of play, we could have an impact on the direction of research in schools.

Our future research agenda should include plans to draw systematically upon the appropriate methodological models now available in the field and to involve all of those groups who have something to contribute to play research in order to increasing the possiblities of strong inference.

The Role of a Research Replication/Collaboration Network

For all of the reasons stated above, I believe that a "network" method for encouraging active collaboration on play research between early childhood university faculty, preservice students, and early childhood teachers in the field should be initiated. There are models of such research systems presently in place, particularly at universities where play research is a major focus. These models could be communicated to colleagues and consultative support could be provided

to assist others in developing and maintaining such systems. This approach is likely to result not only in an enhancement of the quality of research on play but also in accomplishing the goal of giving more attention to play in teacher education and in classroom practice.

I believe that sytematic networking of university researchers interested in similar questions, methodologies, and theoretical paradigms, with collaborative data collection by early childhood teachers who are full collegial members of these networks is a concept with great potential. It would bring together, for short or long periods of time, those who wished to work on questions that are part of a common research agenda. This collaborative work could have a positive impact both on the research-based body of knowledge and on the valuing of play as part of the curriculum of the school.

The concept of a research replication network is not unique to me. (Larry Barber of Phi Delta Kappa initially proposed the idea to participants in a PDK research workshop.) I have since also proposed the idea to early childhood teacher educators. I am convinced that we must work in concert if we are to ensure that play research has a solidly based, consistent place as a discipline of inquiry, as a means of informing classroom practice, and as an important content area in the training of early childhood teachers. In order to

reach this goal, we need to have some common understandings about the nature of play research, the body of knowledge being established by this research, the methodological directions that are likely to be most fruitful, and the ways that we can effectively build upon the present body of knowledge and communicate its relevant findings to practitioners.

In conclusion, I invite those of you who are interested either in having your work replicated, in collaborating with other researchers, in replicating others' work, in providing leadership for a research team, and/or serving as a mentor to other researchers to make your interests known to me. I will then try to facilitate a planning session where the development of such a network can be discussed further. I also invite dialogue on the pros and cons of such a network. Although I certainly believe that the study of play is progressing well through the conventional systems, I am convinced that research networks of the type I propose would enhance our capabilities for strong inference in the study of play and keep this research emphasis in the mainstream as long as possible, thus enabling early childhood researchers in every generation to engage in what a number of theorists (e. g., Lorenz, 1976, cited in Johnson, 1984) have called the highest form of play--research on play!

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Table 1

Characteristics of Naturalistic Observation, Experimental Manipulation, and Self-Report/Performance Methods of Studying Play

Naturalistic Observation:

Focus of Hypotheses:

- -types of play observed in various settings
- -relationships between play behaviors and other areas of development
- -stages of play development observed in natural settings
- -ecological factors that influence play
- -social interactions with peers, parents, other adults

Typical Subjects:

- -infants through kindergarteners
- -older children in public settings (e. g., playgrounds)

Settings:

- -children's homes
- -day care centers, preschools, kindergartens
- -playgrounds, streets, community sites

Procedures for Data Collection:

- -event sampling (i. e., recording instances of target behavior)
- -time sampling (i. e., recording behavior at specified time intervals)
- -case studies or running accounts (i. e., stream of behavior of one child)
- -ethnographic long term recording (e. g., videotaping of day, then observing patterns of behavior)

Procedures for Analysis

- -quantified (i. e., with frequencies of behaviors recorded, comparisons of means or percentages, and statistical analysis)
- -qualitative (i. e., narrative descriptions, case studies, various types of ecological and ethological analyses)

Experimental Manipulation:

Focus of Hypotheses:

- -cause-and-effect questions (e. g., effects of training)
- -stage related behaviors as a function of specific materials or settings (e. g., pretense with realistic/unrealistic objects)
- -antecedents and consequences associated with play processes
- -manipulations of contextual factors (e. g., changes in play spaces)
- -changes in play as a function of adult models of play

Typical Subjects:

-infants through kindergarteners, with emphasis on toddlers and preschoolers
-older children's game play (e. g., under conditions requiring cooperation)

Settings:

-laboratory settings designed to look like homes or playrooms
-day care centers, preschools, kindergartens where environmental manipulation is possible

Procedures for Data Collection:

-pretest/postest designs for training studies or ones investigating antecedant/consequent play behaviors
-observation and counting of specific behaviors that should be elicited by experimental setting variables
-videotapes analyzed for specific coding dimensions

Procedures for Analysis

-quantified (i. e., with frequencies of behaviors recorded, comparisons of means or percentages, and statistical analysis)
-qualitative (i. e., precise descriptions of stages or micro-behaviors that occur under experimental conditions),

Self-Report/Performance Measures:

Focus of Hypotheses:

-types of play, toys, or games reported as preferred by subjects
-comparisons of groups of subjects at differing time periods, from differing cultural groups, of differing genders on play/game/toy preferences
-stages of friendship and play/games
-individual factors (i. e., traits of cognitive, social, personality) that influence preferences or performance
-social play preferences (e. g., race, gender)

Typical Subjects:

-preschool through middle childhood; sometimes adolescents
-parents and other adults who give reports on children

Settings:

-varied, depending on group(s) being studied
-day care centers, preschools, kindergartens, schools, where ever subjects are located
-playgrounds, streets, community sites

Procedures for Data Collection:

- -check lists, questionnaires or other paper and pencil surveys
- -interviews using structured or unstructured questions
- -performance measures using pictures, representative objects (e. g., toys)
- -projective measures requiring interpretation from a theoretical perspective

Procedures for Analysis

- -quantified (i. e., with frequencies of preferences counted, comparisons of means or percentages, and statistical analysis)
- -qualitative (i. e., descriptions of typical groups, case studies, various types of ecological and ethological analyses)
- -theoretically based interpretations of performance or verbal responses

NOTE: Many researchers use more than one of these methodologies in studying particular questions. They have been combined in a variety of ways (e. g., Singer (1973) used interviews, projective measures, naturalistic observation, and observation of experimental manipulations).

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TABLE 2-1 ● Naturalistic Observation Methods of Studying Play

Questions of Interest	Age of Subjects	Settings	Procedures	Researchers
Social/cognitive play dimensions	Toddler/preschool/ kindergarten	Classroom	Time samples, social/cognitive dimensions compared	Rubin et al., 1975, 1976, 1978; Sponseller et al., 1974, 1979
Pretense/language relationship	Infant/toddler	Home	Sequence of events, sensorimotor/ language relationships explored	Nicolich, 1977
Recess play games	Elementary	School playground	Event samples, social/cognitive dimensions compared	Eifermann, 1971
Adult/peer social play	Infant/toddler/ parent	Home/center	Sequence of events, social play interactions described	Hay et al., 1979, 1983; Bruner et al., 1976, 1982
Peer social play	Toddler	Center	Event, time samples, social play interactions described	Mueller et al., 1975, 1977
Physical/social play	Elementary	Parks, playgrounds	Events recorded on film, play fighting categories described	Aldis, 1975
Sociodramatic play	Preschool	Center	Sequence of events, text and context described	Schwartzman, 1978, 1979
Language/game play	Elementary	Streets, playgrounds	Game events, language samples collected and described	Opie & Opie, 1959, 1969
Physical outdoor play	Preschool/primary	Playgrounds	Time, event samples, social/ cognitive types of play recorded	Frost et al., 1985

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TABLE 2-2 ● Experimental Methods of Studying Play

Questions of Interest	Age of Subjects	Settings	Procedures	Researchers
Levels of object transformation in pretense	Toddler/preschool	Laboratory/testing room	Conditions varying by realism, responses to conditions recorded	Fein et al., 1975, 1979; Golumb, 1977
Fantasy/cognitive relationships	Preschool	Center/training room	Pretest, training in fantasy play, posttest	Saltz et al., 1974, 1977; Rosen, 1974
Pretense development	Toddler/preschool	Laboratory/testing room	Modeling, eliciting of pretense under varied conditions, responses recorded	Bretherton et al., 1984; Fenson, & Ramsey, 1980
Sociodramatic play intervention	Preschool	Center/in class	Pretest, sociodramatic play intervention, posttest	Smilanski, 1968
Activity level/ environment interactions	Preschool	Laboratory/testing room	Camera recorded activity/movement/ play under varied physical environment conditions	Ellis & Scholtz, 1978
Social/language pretense interactions	Toddler/preschool	Center/testing room	Peer dyads in settings with varied materials, interactions recorded	Garvey, 1977
Elicitors of exploration/play	Preschool	Laboratory/testing room	Responses in presence of objects of varied novelty and complexity recorded	Hutt, 1971, 1979
Play/problem solving relationships	Preschool/ kindergarten	Laboratory/testing room	Conditions varying in directness of problem solving suggestions/play, responses to novel problems recorded	Sylva et al., 1976
Fantasy play/ television relationships	Preschool	School center/ home	Pretest, television intervention, posttest	Singer & Singer, 1978, 1984

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TABLE 2-3 ● Self-Report or Self-Performance Methods of Studying Play

Questions of Interest	Age of Subjects	Settings	Procedures	Researchers
Game and play preferences	Elementary	School/home	Play preference list, self-report	Rosenberg & Sutton-Smith, 1960; Wolfgang, 1985
Imaginative play predisposition	Preschool/ kindergarten	Center/school/ home	Interviews with children/parents	Singer & Singer, 1973, 1978
Game and play knowledge and preferences	Elementary	Neighborhood	Questions on game knowledge	Roberts, 1980
Friendship/play relationships	Elementary	School classroom	Sociometric techniques	Hallinan & Tuma, 1978
Games/play	Elementary	University classroom/ neigborhoods	Retrospective reports, collectors' reports, published works	Abrahams, 1962; Brewster, 1953
Favorite play experiences	Eementary	University classroom	Adult retrospective accounts	Bergen, 1985, 1986
Basis of friendship (including play-related)	Elementary/adult	Varied	Interviews	Berndt, 1981, 1982; Selman, 1981; Youniss & Volpe, 1978
Expectations for friendship (including play-related.	Elementary	Classroom	Essays	Bigelow, 1977

Table 3

Questions Identified for Further Study

Exploratory Play (Identified by McGhee, 1984)

-where is the line between play and exploration?
-how does the context influence exploration and exploratory play?
-what is the influence on play of specific characteristics of objects (e. g., novelty, complexity)

Pretense (Identified by McCune-Nicolich & Fenson, 1984)

-what are the experiences or internal developmental factors that account for specific changes in pretense?
-what are the interrelationships among the structures of play stages?
-what are the interrelationships among trends in pretense development and other developmental trends? (e. g., language)

Games with Rules (Identified by Roberts, 1980)

-are the number of games play and the types of game being played changing?
-is less time spent in middle childhood playing games?
-what is the effect of adult involvement in play and games?
-how do play/games differ in differing cultures/ethnic groups?

Major Questions On Play (Identified by Sutton-Smith, 1979)

-how does play arise and develop? (antecedents of play)
-what is the nature of play boundary behaviors and play frames (transitions into play)
-what are the characteristics of play structures? (routines, formats, stereotypes, games, flow)
-how does play change over short and long time periods?
-what are the consequences of play for other areas of development?

Future Questions for Play Research (Identified by Rubin, Fein, & Vandenberg, 1983)

-how can play be used as an assessment tool?
-how does play relate to socialization, language, and cognition?

Other Questions (Identified by Quinn & Rubin, 1984; Schwartzman, 1984; Cichetti, 1985; Saltz & Brodie, 1982)

- -how do characteristics of handicapped children's play differ from non-handicapped children's play?
- -how does the play of children from other cultural groups differ from white, middle class children's play?
- -how does the play of physically or environmentally stressed children differ from non-stressed children's play?
- -what is the potential of training to enhance play development?

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